

22600

## WE CLAIM:

1. An apparatus comprising:

a supply holding a flattened box blank;

a conveyor passing in a transport direction adjacent the supply and having a succession of box seats spaced apart in the direction;

a planet carrier rotatable about a sun axis between the supply and the conveyor;

a single planetary element on the carrier offset from the sun axis, having axially spaced inner and outer ends, and rotatable about a planet axis parallel to and offset from the sun axis;

a grab on the planetary-element outer end engageable with the blank in the supply and engageable in the conveyor seats;

a planet drive wheel fixed to the planetary-element inner end and rotatable with the planetary element about the planet axis;

a sun wheel rotatable about the sun axis;

means coupling the wheels together for joint synchronous rotation;

carrier drive means connected to the carrier for rotating the carrier about the sun axis such that the planetary element orbits about the sun axis; and

22600

24 planetary drive means separate from the carrier driv  
25 means and connected to the sun wheel for rotating the planetary  
26 element about the planet axis independently of the carrier such  
27 that the grab moves while orbiting about the sun axis through a  
28 closed asymmetric path having only two outer points, the grab  
29 engaging the blank in the supply in one of the outer points and  
30 pressing the blank into one of the seats in the other of the  
31 outer points.

1 2. The apparatus defined in claim 1 wherein the  
2 planetary drive means includes a stepping motor.

1 3. The apparatus defined in claim 1 wherein the  
2 planetary drive means includes a servomotor.

1 4. The apparatus defined in claim 3 wherein the  
2 servomotor steps the planetary element angularly about the planet  
3 axis.

1 5. The apparatus defined in claim 1 wherein the  
2 planetary drive means orients the grab relative to the planet  
3 axis at about 120° offset positions in the outer points.

22600

1           6. The apparatus defined in claim 1 wherein the  
2 conveyor is provided with leading uprights movable in the  
3 direction and sliding uprights movable relative to the leading  
4 uprights, each cell having one of the leading uprights and one of  
5 the sliding uprights.

1           7. The apparatus defined in claim 1 wherein the  
2 planetary drive means is of variable speed but always rotates the  
3 planetary element in the same rotational sense.

1           8. The apparatus defined in claim 1 wherein the  
2 carrier drive means rotates the carrier in a rotational sense  
3 opposite that of a rotational sense imparted to the planetary  
4 element by the planetary drive.

1           9. The apparatus defined in claim 1 wherein the supply  
2 is a downwardly inclined chute.

22600

1           10. The apparatus defin d in claim 1 wherein the  
2 element is L-shaped and has a main leg extending along the  
3 planetary axis and a transverse leg extending generally  
4 perpendicular from the main leg and having the outer end carrying  
5 the grab.